

CLAIMS:

1. An image forming apparatus comprising:
 - a heater configured to heat and fix a toner image formed on a recording medium;
 - a detector configured to detect a current supplied from an external power source to the image forming apparatus;
 - a battery configured to supply power to the heater;
 - a charger configured to charge the battery with power supplied from the external power source; and
 - a controller configured to control the charger such that a current supplied from the charger to the battery changes based on the current detected by the detector.
2. The image forming apparatus according to claim 1,
wherein the heater receives power supplied from the external power source
independently of the battery.
3. The image forming apparatus according to claim 1,
wherein the heater includes a first heater supplied with power from the external power source and a second heater supplied with power from the battery.
4. The image forming apparatus according to claim 1,
wherein the battery includes an electric double-layer capacitor.
5. The image forming apparatus according to claim 1, further comprising:
a discharging switch configured to connect and disconnect the battery to the heater,
wherein said controller controls the discharging switch such that the battery is
connected to the heater during a ramp-up period of the image forming apparatus.
6. The image forming apparatus according to claim 1, further comprising:
a charging switch configured to connect and disconnect the charger to the battery,
wherein said controller controls the charging switch such that the charger is connected
to the battery during an image forming period of the image forming apparatus.
7. The image forming apparatus according to claim 1, further comprising:

a charging switch configured to connect and disconnect the charger to the battery, wherein said controller compares the current detected by the detector to a threshold current value, and controls the charging switch such that the charger is connected to the battery when the current detected by the detector is less than the threshold current value.

8. The image forming apparatus according to claim 7, wherein the controller controls the charger such that the charger supplies a constant current to the battery.

9. The image forming apparatus according to claim 8, wherein said controller controls the charger such that the constant supplied current is in correspondence with a difference between the current detected by the detector and the threshold current value.

10. The image forming apparatus according to claim 1, wherein the detector detects a voltage supplied from the external power source to the image forming apparatus, and wherein the controller controls the charger such that power supplied from the charger to the battery changes based on the voltage detected by the detector.

11. The image forming apparatus according to claim 10, further comprising: a charging switch configured to connect and disconnect the charger to the battery, wherein the controller compares a power calculated based on the current and the voltage detected by the detector to a threshold power value, and controls the charging switch such that the charger is connected to the battery when the calculated power is less than the threshold power value.

12. The image forming apparatus according to claim 11, wherein the controller controls the charger such that the charger supplies a constant power to the battery.

13. The image forming apparatus according to claim 12,

wherein the controller controls the charger such that the constant supplied power is in correspondence with a difference between the calculated power and the threshold value of the power.

14. An image forming apparatus comprising:

a heater configured to heat and fix a toner image forming on a recording medium;
a detector configured to detect a current supplied from an external power source to the image forming apparatus;
a battery configured to supply power to the heater;
a charger configured to charge the battery with power supplied from the external power source;
a charging switch configured to connect and disconnect the battery to the charger; and
a controller configured to control the charging switch such that the charger connects to the battery based on the current detected by the detector.

15. An image forming apparatus comprising:

a heater configured to heat and fix a toner image formed on a recording medium;
a detector configured to detect a power consumption of the image forming apparatus;
a battery configured to supply power to the heater;
a charger configured to charge the battery with power supplied from an external power source; and
a controller configured to control the charger such that a current supplied from the charger to the battery changes based on the detected power consumption.

16. An image forming apparatus comprising:

a heater configured to heat and fix a toner image formed on a recording medium;
a detector configured to detect a power consumption of the image forming apparatus;
a battery configured to supply power to the heater;
a charger configured to charge the battery with power supplied from an external power source;
a charging switch configured to connect and disconnect the battery to the charger; and
a controller configured to control the charging switch such that the charger connects to the battery based on the detected power consumption.

17. An image forming apparatus comprising:

- a heater configured to heat and fix a toner image formed on a recording medium;
- a battery configured to supply power to the heater;
- a charger configured to charge the battery with power supplied from an external power source;
- a charging switch configured to connect and disconnect the battery to the charger; and
- a controller configured to control the charging switch such that the charger connects to the battery during an image forming period.

18. The image forming apparatus according to claim 17, further comprising:

- a discharging connect and disconnect the battery to the heater,
- wherein the controller controls said discharging switch such that the battery is connected to the heater during a ramp-up period of the image forming apparatus.

19. An image forming method comprising:

- heating and fixing, via a heater, a toner image formed on a recording medium;
- detecting a current supplied from an external power source to the image forming apparatus;
- supplying power to the heater via a battery;
- charging, via a charger, the battery with power supplied from the external power source; and
- controlling the charging step such that a current supplied via the charging step to the battery changes based on the current detected by the detecting step.

20. The image forming method according to claim 19, further comprising:

- supplying the heater with power from the external power source independently of the battery.

21. The image forming method according to claim 19,

- wherein the heater includes a first heater supplied with power from the external power source and a second heater supplied with power from the battery.

22. The image forming method according to claim 19,

- wherein the battery includes an electric double-layer capacitor.

23. The image forming method according to claim 19, further comprising:
connecting and disconnecting the battery to the heater,
wherein the controlling step controls the connecting and disconnecting step such that
the battery is connected to the heater during a ramp-up period of the image forming
apparatus.

24. The image forming method according to claim 19, further comprising:
connecting and disconnecting the charger to the battery,
wherein said controlling step controls the connecting and disconnecting step such that
the charger is connected to the battery during an image forming period of the image forming
apparatus.

25. The image forming method according to claim 19, further comprising:
connecting and disconnecting the charger to the battery,
wherein said controlling step compares the current detected by the detecting step to a
threshold current value, and controls the connecting and disconnecting step such that the
charger is connected to the battery when the current detected by the detecting step is less than
the threshold current value.

26. The image forming method according to claim 25,
wherein the controlling step controls the charger such that the charger supplies a
constant current to the battery.

27. The image forming method according to claim 26,
wherein said controlling step controls the charger such that the constant supplied
current is in correspondence with a difference between the current detected by the detecting
step and the threshold current value.

28. The image forming method according to claim 19,
wherein the detecting step detects a voltage supplied from the external power source
to the image forming apparatus, and
wherein the controlling step controls the charger such that power supplied from the
charger to the battery changes based on the voltage detected by the detecting step.

29. The image forming method according to claim 28, further comprising:
connecting and disconnecting the charger to the battery,
wherein the controlling step compares a power calculated based on the current and the voltage detected by the detecting step to a threshold power value, and controls the connecting and disconnecting step such that the charger is connected to the battery when the calculated power is less than the threshold power value.

30. The image forming method according to claim 29,
wherein the controlling step controls the charger such that the charger supplies a constant power to the battery.

31. The image forming method according to claim 30,
wherein the controlling step controls the charger such that the constant supplied power is in correspondence with a difference between the calculated power and the threshold value of the power.

32. An image forming method comprising:
heating and fixing, via a heater, a toner image forming on a recording medium;
detecting a current supplied from an external power source to the image forming apparatus;
supplying power to the heater via a battery;
charging, via a charger, the battery with power supplied from the external power source;
connecting and disconnecting the battery to the charger; and
controlling the connecting and disconnecting step such that the charger connects to the battery based on the current detected by the detecting step.

33. An image forming method comprising:
heating and fixing, via a heater, a toner image formed on a recording medium;
detecting a power consumption of the image forming apparatus;
supplying power to the heater via a battery;
charging, via a charger, the battery with power supplied from an external power source; and

controlling the charger such that a current supplied from the charger to the battery changes based on the detected power consumption.

34. An image forming method comprising:
heating and fixing, via a heater, a toner image formed on a recording medium;
detecting a power consumption of the image forming apparatus;
supplying power to the heater via a battery;
charging, via a charger, the battery with power supplied from an external power source;
connecting and disconnecting the battery to the charger; and
controlling the connecting and disconnecting step such that the charger connects to the battery based on the detected power consumption.

35. An image forming method comprising:
heating and fixing, via a heater, a toner image formed on a recording medium;
supplying power to the heater via a battery;
charging, via a charger, the battery with power supplied from an external power source;
connecting and disconnecting the battery to the charger; and
controlling the connecting and disconnecting step such that the charger connects to the battery during an image forming period.

36. The image forming method according to claim 35, further comprising:
connecting and disconnecting the battery to the heater,
wherein the controller controls the step of connecting and disconnecting the battery to the heater such that the battery is connected to the heater during a ramp-up period of the image forming apparatus.

37. An image forming system comprising:
means for heating and fixing a toner image formed on a recording medium;
means for detecting a current supplied from an external power source to the image forming apparatus;
means for supplying power to the heating means;

means for charging the battery with power supplied from the external power source; and

means for controlling the charging means such that a current supplied via the charging means to the supplying means changes based on the current detected by the detecting means.

38. The image forming system according to claim 37,
wherein the heating means receives power supplied from the external power source independently of the battery.

39. The image forming system according to claim 37,
wherein the heating means includes a first heater supplied with power from the external power source and a second heater supplied with power from the supplying means.

40. The image forming system according to claim 37,
wherein the supplying means includes an electric double-layer capacitor.

41. The image forming system according to claim 37, further comprising:
means for connecting and disconnecting the supplying means to the heating means,
wherein the controlling means controls the connecting and disconnecting means such that the supplying means is connected to the heating means during a ramp-up period of the image forming apparatus.

42. The image forming system method to claim 37, further comprising:
means for connecting and disconnecting the charging means to the supplying means,
wherein said controlling means controls the connecting and disconnecting means such that the charging means is connected to the supplying means during an image forming period of the image forming apparatus.

43. The image forming system according to claim 37, further comprising:
means for connecting and disconnecting the charging means to the supplying means,
wherein said controlling means compares the current detected by the detecting means to a threshold current value, and controls the connecting and disconnecting means such that the charging means is connected to the supplying means when the current detected by the detecting means is less than the threshold current value.

44. The image forming system according to claim 43,
wherein the controlling means controls the charging means such that the charging
means supplies a constant current to the supplying means.

45. The image forming system according to claim 44,
wherein said controlling means controls the charger such that the constant supplied
current is in correspondence with a difference between the current detected by the detecting
means and the threshold current value.

46. The image forming system according to claim 37,
wherein the detecting means detects a voltage supplied from the external power
source to the image forming apparatus, and
wherein the controlling means controls the charger such that power supplied from the
charging means to the supplying means changes based on the voltage detected by the
detecting means.

47. The image forming system according to claim 46, further comprising:
means for connecting and disconnecting the charging means to the supplying means,
wherein the controlling means compares a power calculated based on the current and
the voltage detected by the detecting means to a threshold power value, and controls the
connecting and disconnecting means such that the charging means is connected to the
supplying means when the calculated power is less than the threshold power value.

48. The image forming system according to claim 47,
wherein the controlling means controls the charging means such that the charging
means supplies a constant power to the supplying means.

49. The image forming system according to claim 48,
wherein the controlling means controls the charging means such that the constant
supplied power is in correspondence with a difference between the calculated power and the
threshold value of the power.

50. An image forming system comprising:

means for heating and fixing a toner image forming on a recording medium;
means for detecting a current supplied from an external power source to the image forming apparatus;
means for supplying power to the heating means;
means for charging the supplying means with power supplied from the external power source;
means for connecting and disconnecting the supplying means to the charging means;
and
means for controlling the connecting and disconnecting means such that the charging means connects to the supplying means based on the current detected by the detecting means.

51. An image forming system comprising:
means for heating and fixing a toner image formed on a recording medium;
means for detecting a power consumption of the image forming apparatus;
means for supplying power to the heating means;
means for charging the supplying means with power supplied from an external power source; and
means for controlling the charging means such that a current supplied from the charging means to the supplying means changes based on the detected power consumption.

52. An image forming system comprising:
means for heating and fixing a toner image formed on a recording medium;
means for detecting a power consumption of the image forming apparatus;
means for supplying power to the heating means;
means for charging the battery with power supplied from an external power source;
means for connecting and disconnecting the supplying means to the charging means;
and
means for controlling the connecting and disconnecting means such that the charging means connects to the supplying means based on the detected power consumption.

53. An image forming system comprising:
means for heating and fixing a toner image formed on a recording medium;
means for supplying power to the heating means;

means for charging the supplying means with power supplied from an external power source;

means for connecting and disconnecting the supplying means to the charging means; and

means for controlling the connecting and disconnecting means such that the charging means connects to the supplying means during an image forming period.

54. The image forming system according to claim 53, further comprising:
means for connecting and disconnecting the supplying means to the heating means;
wherein the controlling means controls the means for connecting and disconnecting the supplying means to the heating means such that the supplying means is connected to the heating means during a ramp-up period of the image forming apparatus.